Language Processing through Letters

—Letters as Visual Representations—

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1 Introduction

A century has passed since French symbolist poets observed that letters in western civilizations lack symbolic meaning in comparison with letters in eastern civilizations, i.e. Chinese characters, and referred to this fact as the "crucial defect of the western languages".[1] Although no denial has been raised against this observation, the linguistics of today has not provided a proper description of this area. This is partly because the focal concern of linguists has been the syntax or semantics of our language. The aim of this paper is to analyze the function of literal representations in language processing and to show that letters play a vital role in our language processing.

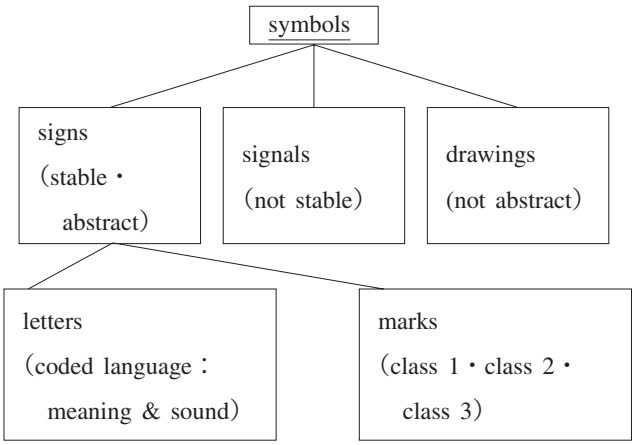
Letters are specialized visual symbols representing phonetic language, and this property is significant in western letters. On the other hand, in the cultural sphere of Chinese characters in the east, letters themselves frequently convey symbolical meanings without the recognition of their readings in sound, despite the linkages between letters and sound representations. This is significant in "*man'yo gana*", which is a kind of phonetic character system using Chinese characters, as well as in Chinese calligraphy. This also shows that language processing sometimes occurs through visual representations, without passing through phonetic representations. In other words, language processing is not a simple model based on phonetic representations, but is a complex model which comprises multiphase processing. This finding is also insightful to the archeological study of letters where the description of the development of letters from mere signs to proper letters which combine coded sound and meaning is at issue. Furthermore, once the development of the letters is clearly depicted, the language processing at stake will be illuminated with rich evidence of the early stages of our language, which in turn will contribute to the clarification of the modular structure of our language in the brain.

The language changes which were prompted by the expansion of literacy are also notable, cf. Ong (1982), Auerbach (1958). I will show the dynamic path through which mere visual signs came to represent phonetic language as letters, and how those letters changed the language itself in turn. The structure of signs and letters are analyzed in section 2. Letters as visual representations and their role in language processing are discussed in section 3. The language changes prompted by letters will be depicted in section 4.

2 Symbols and letters

Symbols are defined in symbology as everything representing meaning, cf. Isotani (1982) chapter 1 " Linguistics and symbology " by Ikegami Yoshihio. In this paper, I will adopt the classification shown in Okimori (2006) chapter 2 section 3 " The roles of symbols " by Yamada Kunikazu as the basis of the discussion. Yamada classifies symbols into signs, signals and drawings. Signs are classified into letters and marks as in Figure 1.

Figure 1: classification of symbols



Signs are abstract and stable symbols. They possess and convey information which represents specific meanings. Signals are abstract but not stable. Drawings are stable but not abstract. Signs, as stable and abstract symbols are composed of letters and marks. Letters are symbolized language, which convey sound and meaning. The letters of the early days of our civilizations are: the Aztec pictograms of the pre-Columbian Maya civilization of Mesoamerica; the origin of Chinese characters in the hieroglyphs of the Oracle bone script of the Shang Dynasty and the Bronze script of the Zhou Dynasty; and among the eldest, the pictograms of the Sumerian Cunei forms. From an archeological standpoint, marks are closely related to letters. I will describe marks in more detail.

Marks are classified into three categories by Yamada in Okimori(2006: 110). Class 1 marks have sociality and concrete referents. Their meanings are systematic and coded; examples are emblems and *kao* (symbolic signatures in Japan). Class 2 marks have sociality and generality. Examples include the" 卍 "symbol (meaning temples) and symbolic compositions in the Yayoi period. Class 3 marks do not have sociality or generality; examples are " temporal marks ", " simplified signatures ", " spatula signs ".

As the analysis of symbols so far clearly shows, letters are closely related to marks, that is, they share systematic and coded features. This fact has not been properly treated in linguistic discussions,

but is crucial to the description of the function of letters in language processing.

3 Letters as visual representations and their meanings

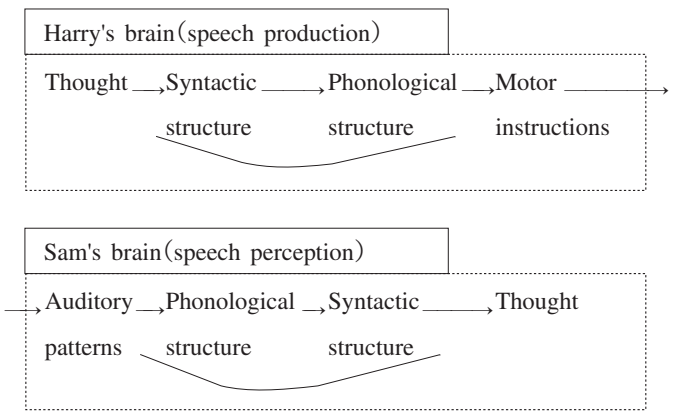
In this section, I will discuss the role of letters in language processing, and show the multiphase structure of the process, which is not as simple as has been depicted. On the contrary, a closer look at language processing shows us that the issue at stake is much more complex. For example, when we " read "some calligraphy, we conceive of the meaning without knowing the pronunciation, that is, some language processing occurs directly through visual perception bypassing the auditory patterns. This sort of bypassing process could occur when well trained readers " read " letters of western languages based on phonograms, that is, they understand the meanings of groups of letters directly through visual perception 2. This bypassing process, however, occurs much more generally in the Chinese character cultural sphere because of the hieroglyphic origin of the Chinese characters.

In 3.1, a general language processing model is shown as the starting point of our discussion. In 3.2 and 3.3, a complex multiphase language processing model is introduced to cope with the bypassing process mentioned above. Examples are shown in 3.2 and 3.3 of Chinese character calligraphy and " man'yo gana " respectively, where the symbolic features of the Chinese characters play a vital role.

3. 1 Language processing in general

Language processing is generally depicted as a procedure from the auditory perception through phonetic and syntactic representation to the meaning or thought, as exemplified in Figure 2 Jackendoff (1994), even if the " speech " is written in letters, that is, students have not distinguished the auditory speech and the written speech.

Figure 2: Jackendoff (1994:42) Figure 4.3 The place of Language in the conversion of thought into sound waves and back again



As a founder of contemporary linguistics, Saussure（1916）depicted language as follows;

"A sign is the basic unit of language（a given language at a given time）. Every language is a complete system of signs. Parole（the speech of an individual）is an external manifestation of language."
"A linguistic system is a series of differences of sound combined with a series of differences of ideas."

He further defined sign（signe）as the "combination of concept and acoustic image（image acoustique）", and calls concept "signifié", acoustic image "significant". He did not, however, refer to visual representations or letters, and this omission has been the norm, even if the French symbolist poets observed that the letters in western civilizations lack symbolical meaning in comparison with those of eastern civilizations such as Chinese characters, and referred to this fact as the "crucial defect of the western languages".

This lack of letters in the language processing has been pervaded through the schools of linguistics, i.e., structural linguistics, generative linguistics and cognitive linguistics. As cognitive linguistics advocates the integrated description of general cognition and language ability, the influence of letters on language should be one of the focal points of the discussion.

3. 2 Language processing and focusing — in the case of Chinese character calligraphy

In this section, we will examine the language processing in the case of reading Chinese characters, and show that there are three distinctive processes depending on the representation on which the focus is placed. That is, when we read or watch Chinese character calligraphy, for example, there are three cases of focusing; focusing on the phonetic representation, focusing on the semantic representation, and focusing on visual representation.

Langacker（2006：113,114）depicts focusing as in (1).

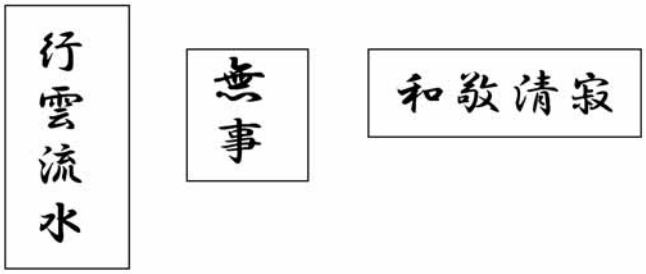
(1) [oooooxxxooooooxxxooooooo]

In (1), we generally perceive two groups of the x's in the scope delimited by brackets. The scope is the general locus of attention, and attention has a focus, whereby something within the immediate scope is accorded special prominence. For instance, we might direct our attention to the group of x's on the left, or to the group on the right, and so on. Focusing occurs not only in the visual perception, but in other sensory perception as well as at the abstract level.

Consider the reading of the Chinese character calligraphy, exemplified in Figure 3, which are popu-

lar on the scrolls in traditional Japanese alcoves.

Figure 3



How do the speakers of Japanese pursue the language processing when they look at these " letters "? The procedure couldn t be explained as cleanly as in Figure 2. We presume three types of processing as in ⑵.

⑵ The multiphase model of the language processing

i *On yomi* or " sound reading " processing type: A type of processing focusing on auditory representations. *On yomi* is a system of pronouncing Chinese characters in a way that at one stage approximated the original Chinese.

ii *Kun yomi* or " reading by meaning " processing type: A type of processing focusing on visual representations which convey abstract meaning of Chinese characters. This process may be undergone in parallel with the " sound reading " process.

iii A processing type which focuses on the abstract meaning coded in visual representations. This process undergoes the identical procedure as the class 1 of marks in Figure 1.

In the actual language processing, these three procedures presumably undergo parallel exercises. That is, the processing of letters occasionally intervenes with that of marks, which blurs the discreteness of the language processing. I will exemplify the procedure by Figure 3, based on the classification in ⑵.

First, in the case of" 行雲流水 ", the processing undergoes the phonetic representation /kouunryusui/ in processing type (i). However, normal speakers of Japanese find difficulty in the syntactic analysis of the given phonetic representation. Thus the processing needs another reading in type (ii). In (ii) processing type, the focus is placed on the visual representations of the Chinese characters, and they are directly connected to the semantic representations of each Chinese character, i.e. " go ", " cloud ", " flow ", and " water "respectively. In parallel with this visual process, *kun yomi* or " reading by meaning " has a phonetic representation like /kumoyukimizunagaru/. This type of reading, however, is sometimes

varied. The (iii) processing type is not shared by all speakers of Japanese, and limited to those who are the practitioners of the way of tea or Zen Buddhism. This processing focuses on the abstract meaning coded in visual representations. This process undergoes the identical procedure as the class 1 marks in Figure 1. The coded meaning in this case is " natural behavior as clouds pass and water flows ".

Second, in the case of " 無事 ", the processing undergoes through the phonetic representation /buji / in processing type(i). In this case, normal speakers of Japanese have a semantic counterpart in their lexicon, and can process the meaning. In (ii) processing type, the focus is placed on the visual representations of the Chinese characters, and they are directly connected to the semantic representations of each Chinese character, i.e. " without " and " matter " respectively. In parallel with this visual process, kun ' yomi or " reading by meaning " has phonetic representation like /kotonaki/. This type of reading, however, is sometimes varied. The (iii) processing type is not shared by all speakers of Japanese, and is limited to those who are practitioners of the way of tea or Zen Buddhism. This processing focuses on the abstract meaning coded in visual representations. This process undergoes the identical procedure of class 1 of the marks in Figure 1. The coded meaning in this case is " without deliberation. "

Finally, in the case of " 和敬清寂 ", the processing undergoes through the phonetic representation /wakeiseijaku/ in processing type(i). However, normal speakers of Japanese find difficulty in the syntactic analysis of the given phonetic representation. Thus the processing needs another reading in type (ii). In (ii) processing type, the focus is placed on the visual representations of the Chinese characters, and they are directly connected to the semantic representations of each Chinese character, i.e. " peace ", " respect ", " purity ", and" tranquility " respectively. *Kun 'yomi* or " reading by meaning ", however, cannot be syntactically analyzed in this case. The (iii) processing type is not shared by all speakers of Japanese, and is limited to those who are the practitioners of the way of tea or Zen Buddhism. This processing focuses on the abstract meaning coded in visual representations. This process undergoes the identical procedure of class 1 of the marks in Figure 1. The coded meaning in this case is the " ideal state of our mind ".

3. 3 The challenge of "*man' yo gana*"

" *Man 'yo gana* ", which is the origin of the Japanese writing system, skillfully utilized the multiphase language processing analyzed in section 3.2(2). According to Okimori (2006) chapter 3 section 1 " The adoption of the Chinese characters and *kun 'yomi* or reading by meaning ", there were three stages in the acceptance of Chinese characters to Japanese language which had no letters of its own. At the first stage, the forms of the Chinese characters were introduced and recognized as symbols of magic and authority. The second stage was the imitation of Chinese literacy. At the same time, they recorded Japanese syllables with Chinese characters which had resembling sounds. In the third stage, the

Chinese characters were read and pronounced according to Japanese counterparts of the same meaning, which is called *kun 'yomi* or " reading by meaning ". It is insightful that each stage corresponds to one of the phases in the multiphase model of language processing in section 3.2⑵. That is the first stage corresponds to(iii), a processing type which focuses on the abstract meaning coded in visual representations, the second stage to (i) *on 'yomi* or " sound reading " processing type, and the third stage to (ii) *kun 'yomi* or the " reading by meaning " processing type, respectively.

" *Man 'yo gama* "is a literary system based on the second stage of the adoption of the Chinese characters, viz. sound reading. Sentences were, however, usually composed of sound reading letters and reading by meaning letters. This literary system has been maintained, although sound reading letters have changed their form into simplified" *hira gana* ". In Okimori (2006) chapter 4 section 5" Man 'yo gana ", a verse in ⑶ is exemplified, Okimori (2006:319).

⑶ 渡津海乃豊旗雲尓伊理比弥之今夜乃月夜清明己曽 (vol.1, no.15)

/watatumino/ toyohatakumoni/ irihimisi/ koyohinotukuyo/ kiyokuterikoso/

Some letters are used only for representing the sound; for example, " 伊理比 " is pronounced /irihi/ and — means sunset — a meaning the Chinese characters do not convey, but the pronunciations are uniquely determined. Some letters are read by meaning, while their pronunciations sometimes vary; for example, " 清明己曽 " has at least three more readings: /sayaniterikoso/,/masayakanikoso/, and /sayakekarikoso/.

4 Language change prompted by letters

Ong(1982)clarifies the distinction between the spoken language and the written language, and analyses the transition from the stage of illiteracy to literacy. This distinction has sometimes been blurred as the letters of the western languages are phonograms by nature. In this section, we will review the change which occurred at the early stage of literacy when the function of letters converted from mere phonetic reproduction into an organized system. A logical structure consisting of propositions emerged in the system.

During the early stages of literacy, the function of letters was limited to the reproduction of phonetic representations. Auerbach (1958) argues that there was a system of recitation meetings of literal works in Ancient Rome. That is, readers of literature were audiences in most cases. This exercise lasted till the end of 6th century. From the early 7th century to the end of 11th century, the classes with Latin literacy had vanished but literature written in local languages had not yet emerged.

Literature works in Anglo-Saxon, a local language, was initiated in England as early as the 9th and

10th century. In the 13th century, literature was written in Romance languages as well as in German. Dante Alighieri's *Divina Commedia* was one of the first works written in a local language, which impressed educated readers around 1300. Reading was still mainly oral at that time.

Ong (1982) names the period when recitation was the norm as oral culture, and the period of written language as writing culture. He reviews the transition from an oral culture to a writing culture, which is to the use of technologies of written words for communication. Ong describes writing as a technology that must be laboriously learned, and which effects the first transformation of human thought from the world of sound to the world of sight. He distinguished 9 features of human thought and its representation of an oral culture as follows:

1) Additive, not subordinative
2) Aggregative, not analytic
3) Redundant or "copious"
4) Conservative or traditional
5) Close to human life
6) Agonistic torn
7) Sympathetic or participating, not objective
8) Homeostatic
9) Situational, not symbolic

The transition from an oral culture to a writing culture caused the functional transition of language from recording and reproduction to logical construction. As a result, devices for memorization were curtailed and expressions changed in their form. In place of devices for memorization, languages have acquired devices for composition of accurate logical forms. The subject of contemporary linguistics has been the language of the latter stage.

5 Conclusion

In this article, I observed the function of letters as visual representations and proposed a multiphase processing model. The model comprises not only processing through phonetic representations, but also the processing through visual representations. Processing through visual representations has not been discussed in literature. As cognitive linguistics aims at the integrated treatment of the human cognitive ability and language ability, the influence of letters on language should be a focal point.

Note

* This is a revised version of "Language processing through letters: from cognitive linguistics to archeology and back", which was adopted in ICLC 2007.

1 In Okubo(2001:85), as one of the symbolist poets like Stéphane Mallarmé (1842-98), Paul Claudel encountered the heliographic origin of the Chinese characters in China. He pursued the significance of the way in which visual symbols directly convey symbolic meanings. He found out the ideal symbol in the Japanese "*ema*" or votive picture, which shows the evolving process from meanings to letters.

2 As Yoshida Junichi pointed out in our discussion, this is typically observed in the conception of logotypes of letters of western languages.

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